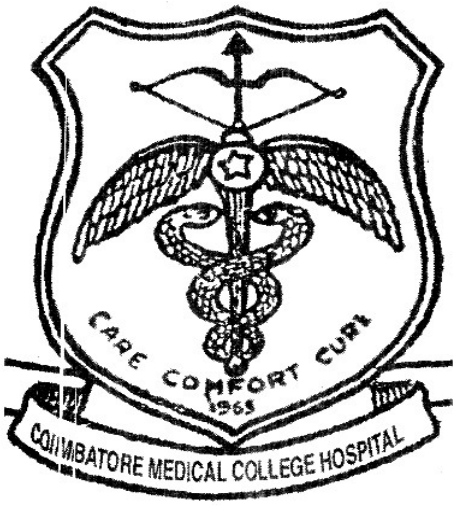
AN ANALYTICAL STUDY OF EYELID TUMORS

CONDUCTED IN

COIMBATORE MEDICAL COLLEGE AND HOSPITAL



DISSERTATION SUBMITTED TO

THE TAMIL NADU DR.M.G.R. MEDICAL UNIVERSITY

IN PARTIAL FULFILLMENT OF THE REGULATIONS FOR

M.S., DEGREE IN OPHTHALMOLOGY

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DEPARTMENT OF OPHTHALMOLOGY

COIMBATORE MEDICAL COLLEGE & HOSPITAL

COIMBATORE

CERTIFICATE

This is to certify that the Dissertation entitled **"AN ANALYTICAL STUDY OF EYE LID TUMORS"** *is a bonafide work of* **DR.D.JEYALATHA,** *Post Graduate in Ophthalmology, Coimbatore Medical College. The thesis work has been prepared by her under my guidance and supervision from July 2006 to October 2007 and this dissertation is submitted to the Tamilnadu Dr. M.G.R. Medical University in partial fulfillment of the regulation for the award of Degree of M.S. in Ophthalmology.*

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DECLARATION

I solemnly declare that the Dissertation titled **"AN ANALYTICAL STUDY OF EYE LID TUMORS"** *was done by me at Coimbatore Medical College & Hospital during the period from July 2006 to October 2007 under the guidance and supervision of Prof.* **Dr.V.R.VijayaRaghavan.**

This dissertation is submitted to the Tamilnadu Dr.M.G.R. Medical University towards the partial fulfillment of the regulation for the award of M.S.Degree in Ophthalmology.

Place : Coimbatore **Dr. D.JEYALATHA**

Date :

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PART – I

PART – II

INTRODUCTION

Eyelid is a complex structure and multitude of benign tumors can arrive from the structures comprising the eyelids. These are classified according to the eyelid structures from which they arrive. These are common cutaneous lesions but differ here because of the unique characteristic of eyelid skin. The field is of interest to the Ophthalmologist as well as dermatologist and therefore many of the tumors of the skin especially the benign ones are seen most often and treated by the latter.

The treatment of ophthalmic disease rarely involves life threatening disorders however there are certain eyelid tumors that have the propensity for aggressive growth and life threatening metastasis.

Accuracy in clinical Diagnosis requires an awareness of the many different lesions which may occur in the palpebral tissues. A thorough familiarity with a practical classification of the tumors can be of great value to clinicians in helping them to improve diagnostic skills and to decide upon the appropriate management.

Most errors that occur in the management of lid tumors are the result of inaccurate diagnosis lack of appropriate histological studies or inadequate surgical margins.

The treatment modalities of these tumors are also plenty. Though surgical management has often been primarily described for most tumors, various other modes of treatment have been proved to be of value in the management of these tumors.

This study aims to study the incidence of various eyelid tumors that have been encountered in the different age groups and also to analyse the various modalities of treatment available and their efficacy in the management of eyelid tumors both benign and malignant.

Patients who refused an excisional biopsy of any tumor that was functionally and cosmetically unharmful have not been included in this study. Similarly patients with chalazion which is a chronic granulomatous inflammation have not been included.

REVIEW OF LITERATURE

The tumors of the eyelid have been described since time unmemorable. However modern statistics on the incidence of various tumors has been published by 'O' Brien and Braky (1936), Welch and Duke (1958) and his Colleagues.

The multiplicity of tumors that occur on the eyelids makes their diagnosis difficult and challenging. Surgical excision forms the most common modality of treatment for eyelid tumors. Until 1829, distant flap techniques of Gaspara Tagliacozzi were the rule in eyelid reconstruction.

Eyelid flap techniques were expanded by Burow (1838), Blesins (1842) and Driffen bach (1845) in 1869 Riverdins reported his revolutionary work on transplantation of free pinch grafts and subsequently full thickness and split thickness skin grafting became accepted in practice.

In 1881 and 1885 Landolt designed procedures to share tarsus and conjunctiva as a pedicle flap between the lids. Ear cartilage was used as a free graft to replace the tarsus by Budinger in 1902. These early innovations have been adapted, modified, refined and incorporated into the modern practice of reconstructive eyelid surgery we know today.

Embryology and Development of Eyelids [1]

The eyelids develop from mesenchymal Condensations located inferior and superior to the Optic Cup, referred to as the frontonasal and maxillary processes. During the 1st month of development, Optic Vesicle is covered merely by a thin layer of surface ectoderm. About 16mm stage proliferation of adjacent mesoderm constitutes the remnants of the eyelids.

In the 2nd month of gestation, both upper and lower eyelids are apparent. The mesenchyme within the condensations differentiates into the tarsus posteriorly and the orbital septum anteriorly. The covering layer of ectoderm becomes skin on outer side and conjunctiva on the Inner side.

The lid margins come in contact with each other in the 3rd month of gestation and temporarily isolating the developing globe from the amniotic fluid.

The cilia develop at the lid junction at this time. Hair follicles form on lid margins.

The glands of Zeis and Moll arise as Outgrowths from their associated ciliary epithelial cells. Meibomian glands develop from epithelial down growth of basal cells in the posterior edge of the adherent lids. Separation of fused eyelids occurs during the 5th and 6th months of gestation.

Anatomy [2]

Structure:

Palpebral tissues from front to back

1. Skin
2. Subcutaneous areolar tissue
3. Striated muscle (Orbicularis Oculi)
4. Submuscular areolar tissue
5. Tarsal plates & fibrous tissue
6. Septum Orbitale
7. Non Striated muscle
8. Conjunctiva

1. Skin:

Palpebral skin is thin (< 1mm thick) almost transparent and elastic. Attachment of the Levator to skin produces superior tarsal sulcus at superior tarsal border. Inferior tarsal sulcus is poorly developed The mucocutaneous junction is just behind the openings of tarsal glands.

2. Sub cutaneous areolar tissue

Loose and contains no fat.

3. Striated muscle:

Orbicularis Oculi (Palpebral sphincter) consists of 2 parts. Palpebral and orbital parts. Palpebral part is central and confined to the lids.

It is divided into pretarsal and preseptal strata. Peripheral fibers of orbital part sweep across the orbital margin in concentric loops, more central ones form almost complete rings.

Palpebral part is related anteriorly to skin posteriorly to tarsal plate and palpebral fascia. Fibres of Levator pass through this into skin. Pars lacrmalis (Horner's muscle) is attached behind the lacrimal sac to posterior lacrimal crest. Pars ciliaris (muscle of Riolan) forms tissue of palpebral margins.

<u>Actions:</u>

Palpabral part closes the lids gently (blinking) orbital part closes the lids firmly. The palpebral part is opposed by levator and orbital part by occupitofrontalis.

Nerve supply is by facial nerve through temporal and zygomatic branches.

4. Sub muscular areolar tissue:

Lies between orbicularis and tarsal plate. Through this plane entered by inscision at greyline may be split into anterior and posterior layers. It is traversed by fibres of Levator and stems of palpebral nerves. In upper lid this space is divided by Levator into pretarsal and pre septal spaces

Pre tarsal space encloses peripheral arterial arcade it is bounded anteriorly by levator tendon and orbicularis and posteriorly by tarsal plate and palpebral muscle.

Pre septal space is triangular in section. It is bounded in front by orbicularis, behind by orbital septum and tendinous fibres of levator piercing orbicularis. Above this preseptal mass of fat lies In front of septum and behind orbicularis.

5. Tarsal plates and fibrous tissue

These form the framework of the lids. Thick centrally as tarsal plate and thin peripherally as septum orbitale. Tarsal plates has dense fibrous tissue and no cartilage. Superior tarsus is transversely crescentric larger and 11 mm in height in middle. Interior tarsus is oblong and 5mm high. Both are 29mm long and 1 mm thick. Anterior surface is convex and posterior surface is concave. Free border at the margin of lid is thick and attached border is thin and continuous with septum orbitale. the ends of both plates are attached to orbital margin by ligaments.

Medial palpebral ligament:

Triangular in shape, base is at anterior lacrimal crest and posterior part is continuous with lacrimal fascia. Anterior part divides at medial canthus into 2 bands form a “Y” on its side with main ligament and blend with medial ends of tarsal plates. Deep or reflected part attaches behind lacrimal sac.

Lateral palpebral ligament:

Deeper and less prominent than medial and is attached to orbital tubercle.

6. The septum orbitale (Palpebral fascia)

It is attached to the orbital margin and centrally continuous with the tarsal plates except where pierced by levator in upper lid and inferior rectus in lower lid.

7. Non striated muscle:

Derived from levator in upper lid and inferior rectus in lower lid and is attached to orbital margin of tarsal plates. It is supplied by sympathetic nerve fibers and widens the palpebral fissure.

8. Conjunctiva:

The palpebral conjunctiva is firmly adherent to tarsus.

Palpebral glands:

Meibomian glands:

These lie within tarsal plates and are arranged vertically. About 25 in upperlid and 20 in lowerlid they consists of central canal into which open numerous rounded acini secreting sebum. The small orifices of the glands open on the margin of the lid just infront of the mucocutaneous Junction. Meibomian secretion prevents overflow of tears by reason of its hydrophobic properties and leaves oily film over tears to retard evaporation.

Ciliary glands of moll

1.5 to 2mm long and set obliquely in contact with the bulbs of cilia more numerous in the lower lid. myoepithelial cells are present between these and their basement membrane.

Sebaceous glands (of Zeis)

These discharge directly into adjoining ciliary follicles, each consisting of 1-3 acini. The degenerating cells are located centrally and then pushed towards the duct. The sebum so formed exudes into ciliary follicle.

Functions of the eyelids

The eyelids form one of the most important elements in the protective system of the eye. This protective function is mediated by the screening and sensing action of the cilia. The secretions of the glands of the eyelids (the tear film) and movements of the lid (blinking, voluntary winking and blepharospasam)

Arterial supply

Eyelids are mainly supplied by medial and lateral palpebral arteries which are branches of dorsal nasal and Lacrimal arteries. Which in turn are branches from ophthalmic artery.

The medial eyelid is supplied by terminal branches from ophthalmic A and the Facial and maxillary arteries. The lateral eyelid is fed by branches of the lacrimal and superficial temporal Arteries. In the upper eyelid there are two arcades and in the lower eyelid only one arcade present near the free edge. The peripheral arcade in the upper lid lying between the upper border of the tarsus and the orbicularis, the marginal arcade in a similar position just above the hair follicle.

Venous drainage :

Veins of the eyelids which are larger and more numerous than the arteries drain medially into the ophthalmic and angular veins and laterally into superficial temporal vein.

Lymphatic drainage:

Lymphatic drainage of the medial eyelids is via lymphatic channels emptying into the ipsilateral submandibular and anterior cervical nodes. The lateral eyelid is drained by channels extending from the periorbita temporally and inferiorly into the ipsilateral parotid and submandibular nodes.

Nerve supply:

1. Motor Nerves are facial N and occulomotor N. Facial N supplies orbicularis oculi and oculomotor N supplies Levator palpebrae superioris.

2. Sensory Nerves to the upper lid is from infratrochlear, Supratrochlear, Supra orbital and lacrimal Nerves from the ophthalmic division of Trigeminal Nerve. The skin of the lower lid is supplied by infratrochlear branch of the ophthalmic division of the trigeminal at the medial angle, the remainder of lower lid is by branches of Infra orbital N (terminal branch of maxillary division of trigeminal Nerve)

3. Sympathetic Nerves supply mullers muscle, Vessels and the glands of the skin.

TUMORS OF THE EYELIDS

Benign tumors of the eyelids occur much more common than malignant tumors.

Classification: (Duke Elder Classification) [3]

I. EPITHELIAL TUMORS

A) Cutaneous:
- **a) benign Lesion**
- **b) precancerous lesion**
- **c) malignant lesion**

a) Benign lesion

1. Squamous Papilloma
2. Senile Keratosis
3. Seborrhoeic Keratosis (Basal Cell Papilloma)
4. Kerato acanthoma (molluscum sebaceum)
5. Inverted follicular Keratosis (Irritated Seborrheic Keratosis)
6. Tricho-epithelioma,
7. Benign Calcified epithelioma of Malharbe
8. Cornu Cutaneum

b) Precancerous lesion

1. Solar Keratosis (Senile Keratosis, Actinic Keratosis)
2. Xeroderma Pigmentosa
3. Radiation dermatosis

c) Malignant Lesion

I. Carcinoma

1. Squamous cell carcinoma
2. Basal cell carcinoma [rodent ulcer]
3. Intra epithelial carcinoma (Bowen's Disease, Carcinoma in situ)

B) Glandular

a) Tumors of the Sebaceous Glands

1. Sebaceous gland hyperplasia
2. Sebaceous adenoma
   - of the meibomian gland
   - of the Zeis gland
3. Sebaceous gland adenocarcinoma
   - of the meibomian gland
   - of the Zeis gland

b) Tumors of the sweat glands

1. Hidradenoma

   Hidradenoma of the skin, syringoma,

   Pleomorphic adenoma, adenoma of moll's glands
2. Hidradenocarcinoma

   Hidradenocarcinoma of skin, of moll's glands

c) Papillary cystadenoma lymphomatosum

d) Oncocytoma

II. Tumors of hair follicles

1. Pilomatricoma
2. Tricho epithelioma
3. Trichofolliculoma

4. Trichilemoma

III. Deep tumors of the lids

A) Mesenchymal tumors

a) Benign

1. Fibroma
2. Tuberous sclerosis
3. Lipoma
4. Rhabdomyoma
5. Leiomyoma
6. myxoma
7. chondroma

b) Malignant – Sarcoma

B) Tumor of lympho – Reticular tissue

1. benign Lymphoma
2. Lymphosarcoma
3. Reticulum cell sarcoma
4. Giant follicular lymphoma
5. Burkitt's lymphoma
6. Hodgkin's Disease
7. Mycosis Fungoides
8. Plasmocytoma

c) Vascular Tumors

1. Haemangioma
   - Capillary
   - Cavernous
   - Plexiform
   - Haemangio endothelioma
   - Haemangio pericytoma
   - Spider Angioma

Senile Angioma
Angioma Serpinosum

2. Telangiectatic granuloma

3. Angiokeratoma of mibelli

4. Multiple haemorhagic Sarcoma of Kaposi

5. Glomus tumor

6. Lymphangioma – lymphangio endothelioma

D) Nervous tissue tumors

a) Neurofibromatosis

- plexiform neuroma
- diffuse neurofibromatosis
- molluscum fibrosum
- multiple mucosal neuroma syndrome

b) Neurilemmoma

c) Glandular cell schwannoma of Abrikossoff

d) Ganglioneuroma

e) Amputation neuroma

E) Developmental tumors

Dermoids

Teratoma

Phakomatous choristoma

F) Metastatic tumors

IV Pigmented tumors

1) Naevus

2) Malignant melanoma

V Non Tumors

1. Chalazion
2. Granuloma pyogenicum
3. Xanthelasma
4.

Benign epithelial tumors [4]

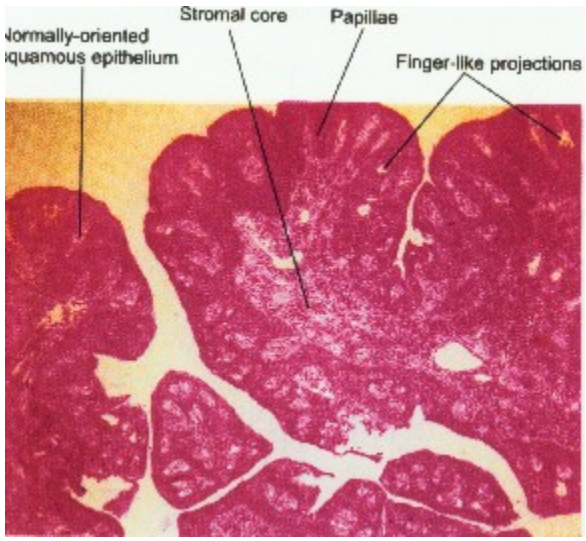
Non cystic lesions

1) Squamous papilloma: (Skin tags or Acrochordon)

This is nothing but benign hyperplasia of squamous epithelium. Squamous papillomas are the most common benign lesions of the eyelid and may be sessile or pedunculated. involving the lid margin especially near medial canthus found in middle aged and elderly individuals.

Histology: Composed of papillae with vascularised connective tissue covered by acanthotic epithelium. There is no tendency for spontaneous recovery or acute enlargement.

Squamous papilloma Verrucoid Type



Histology

DD: Nevus, Fibroma, epithelioma, Actinic keratosis, Verruca Vulgaris and Seborrheic Keratosis.

Treatment:

Surgical excision

Co_2 laser ablation.

2) Seborrheic Keratosis (Basal cell papilloma)

This is found on the eyelids and face of middle aged and elderly persons. Well circumscribed, brown in colour, stuck on the surface of the eyelid, not involve the dermis. Microscopically they are charaterised by an outward acanthotic proliferations of basaloid cells and may show variations such as hyperkeratosis. Basaloid appearance is often confused with Basal cell carcinoma Characteristic differentiating feature is presence of accumulation of keratin in Crypts.

DD:

Basal or squamous cell epithelioma

Nevus

Fibroepithlial papilloma

Actinic keratosis:

Treatment:

- Curettage may be adequate for smaller flat lesion. However pedunculated lesions of any size should be excised.
- Cryosurgery – for facial lesions under 3mm in size
- Co_2 laser also tried.

3) Kerato acanthoma [5]

- Common in middle age and elderly individual
- Elevated Dome shaped
- Occurs in lower lid

Commonly solitary. Rapid growing then remain unchanged for several; months then involute leaving a pitted scar.

Telangiectasia may be found on the tumor and it may often confused with Basal cell or squamous cell carcinoma.

Histology:

Cup like nodular elevation of the lesion with thickening of the epidermis surrounding a central area of keratin.

Treatment:

Excisonal biopsy – treatment of choice

Other modalities – cryo, Curettage, Cauterisation

Podophyllin administration, Irradiation, steroids

4) Pilomatricoma (Calcifying epithelioma of malharbe pilomatrixoma)

derived from germinal matrix of hair bulb/affect young females – commonest hair follicle proliferation.

Histology – Irregular epithelial islands exhibiting visible basophilic cells at periphery and degenerate shadow cells in centre calcification is present.

Signs: deep dermal nodule that may be hard due to calcification

Trt: excision.

5) Pseudo epithelomatous hyperplasia:

Benign condition occurring in areas of cryosurgery or surgical wounds as well as in patients with chronic ulcers.

The lesion represents disorder of epidermis with active proliferation of epidermoid or squamous cells that develop into hyperkeratotic nodule on skin surface.

6) Inverted follicular keratosis;

- benign lesion
- Occur in middle aged and old individuals
- usually solitary
- predominantly males
- Lesions found both in upper lid and lower lid
- It represents a type of Irritated
- seborrhic keratosis
- For cosmetic reasons it should be completely excised when small.

Cystic lesions:

1) Hidrocystoma
   - Apocrine
   - Eccrine

Apocrine hidrocystoma

- multiloculated and solitary / bluish in colour
- arises from blocked moll gland
- appear in lid margin

Histology

Several cystic spaces in the dermis with papillary projections and a lining of 2 layers of secretary cells.

Treatment:

Surgical excision

2) Eccrine hidrocystoma:

- Solitary lesions
- common in middle aged women
- Nothing but ductal retention cyst
- skin over the nodules are smooth and shiny

DD:

Cystic basal cell carcinoma

milia

Apocrine hidrocystoma

Epidermoid cysts.

Treatment:

Surgical excision

3) Epidermal inclusion cyst:

- Slowly progressive, firm subepithelial lesion
- frequently found in upper eyelid
- Occur during adolescence through late adult hood
- cyst contain cheesy material that consists of keratin produced by the inner lining of squamous epithelium
- Origin is from occluded pilo sebaceous follicle or surface epidermis

DD:

Dermoid cyst, sebaceous cyst, lipoma Neurofibromatosis

Complication:

Infection, rupture of cyst with secondary granulomatous reaction, carcinoma.

Treatment: Surgical excision.

Sebaceous cyst:

- located particularly in browregion, inner canthus
- smooth, elevated, yellow subcutaneous tumor with waxy comedo plug in the centre
- Occur secondary to obstruction of Zeis gland, meibomian gland

- Cyst contain degraded epithelial cells, keratin, fat, cholesterol crystals
- Histologically-the epithelial cells that line the cysts have no intercellular bridges and posses pallisading nuclei in the periphery

DD:

Fibroma, epidermal inclusion cyst,

Xanthelesma

Treatment:

Complete excision.

5) milia:

- Umbilicated multiple firm lesion 1-3mm diameter.
- arise from pilosebaceous follicle due to its blockage
- Surgical excision is the treatment of choice
- Diathermy, electrolysis are other methods of treatment

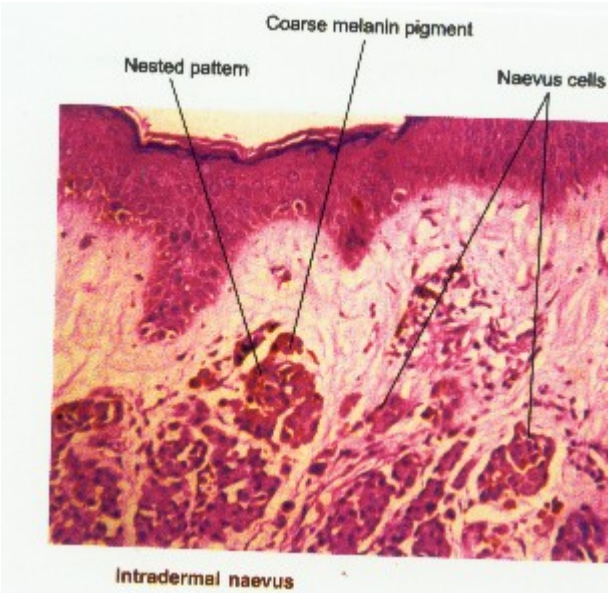
Benign Melanocytic lesions [6]

Melanocytic lesions of skin arise from three source Nevus cells, dermal melanocytes and epidermal melanocytes.

Nevi:

Third most common benign lesions encountered in periocular region after papillomas and epidermal inclusion cysts. They arise from Nevus cells which are

Marginal Nevus



Histology

incompletely differentiated melanocytes in clumps in the epidermis and dermis and junction zone between these two layers.

Junctional Nevi

- located in the basal layer of epidermis at dermal-epidermal junction

Compound Nevi

Extending from junctional zone up to epidermis and down into the dermis

Dermal Nevi

Caused by involution of epidermal component and persistence of dermal component.

DD:

Seborrheic Keratosis, pigmented Basal cell carcinoma, Early melanoma

Simple excision is the recommended choice of treatment if they cause mechanical irritation and cosmetically unacceptable.

Premalegnant epidermal lesions:

Actinic keratosis

- most common precancerous skin lesion
- affects elderly with chronic sun exposure with fair skin
- typically round, scaly, keratotic plaques
- Histologically epidermis shows acanthosis parakeratosis and hyperkeratosis
- patient with multiple actinic keratosis has 16% incidence of squamous cell carcinoma
- Squamous cell carcinoma arising from an actinic keratosis generally considered to be less aggressive than that develops denovo.

Treatment:

Simple excision, curettage, Co_2 laser

Topical 5 FU and Injections of interferon α-2

Bowen's Disease:

- Refers to squamous cell carcinoma in situ of skin
- Elevated nonhealing erythematous lesions
- pathologically full thickness epidermal atypia without dermal invasion
- 5% of patients progress to Invasive squamous cell carcinoma
- Complete surgical excision is advised. Cryo therapy when large areas of involvement.

Vascular Tumors

1) Capillary Hemangioma:

- most common form of congenital vascular tumor of the eyelid.
- appears during the first few weeks of life
- Clinically it is purple red and elevated with Irregular surface
- microscopically, the lesion consists of Capillaries with a single layer of endothelial cells surrounded by pericytes
- most of the lesions involute before 1st decade.

Treatment:

- Injection of selerosing agents
- Radiotherapy
- systemic steroids
- local steroids injection
- diathermy and surgical excision

Haemangioma – Capillary

Plexiform Neurofibromatosis

2) Cavernous heamangioma

- appears later in life, tends not to involute
- lesions are blue and located deeper than capillary haemangioma
- Histologically consists of large vascular channels lined by endothelium with prominent thick fibrous walls.

3) Pyogenic granuloma

- most common acquired vascular lesion of the eyelid is pyogenic granuloma which usually occurs in response to minor trauma or surgery nor in association with chalazion. It appears clinically as a pedunculated reddish mass which is nothing but a mass of granulation tissue with prominent capillaries and surface ulceration and acute inflammation. Local excision is usually curative.

Xanthelesma:

Common lesion that occurs most frequently at the medial aspects of the upper and lower eyelids in middle aged persons appears as yellowish soft plaques. They are nothing but clusters of foamy histiocytes which contain lipid material commonly occur in individuals with elevated serum cholesterol.

Neurofibromatosis:

The eyelids and orbits may be affected by neurofibromatosis. Three types of changes are classically described – plexiform neurofibroma, diffuse neurofibromatosis in any degree up to facial hamiatrophy and molluscum fibrosis. They gradually represent a developmental defect of neuroectodermal tissues.

No known treatment is of any value in this disease but these masses become too large or unsightly, surgical treatment can be done which may need considerable plastic reconstruction.

Dermoid cyst:

Although congenital in Origin, dermoids become apparent later in childhood or early adult hood. It is smooth and painless mass most often located on the upper lid and frequently show an orbital extension. A stalk like extension of the cyst passes through a persistent opening between the orbital bones to connect with intra cranialdura. Detailed preoperative radiological evaluation is a must before excision.

Benign lesions due to Infections: [7]

1) Molluscum Contagiosum

These are skin coloured, dome shaped papular (2-4mm) often with umbilicated centers . They are viral etiology caused by molluscum virus, a member of pox virus groups. In AIDS patients, hundreds of lesions of molluscum contagiosum may be seen showing little tendency to involution.

The lesions are best excised by cryotherapy An alternative technique is light desiccation under local anaesthesia.

2) Verruca Vulgaris: (Wart)

Caused by human papilloma virus

- The lesion is papillomatous circumscribe firm, elevated with hyperkeratotic surface. Foci of vacuolated cells containing clumped keratohyalin granules in the upper layers differentiate verruca vulgaris from other papillomas. Preferred treatment is cryosurgery and light desiccation under local anaesthesia.

Malignant Tumors [8]

Lid malignancies are quiet common and most often develop in Sun exposed people. Approximately 25% of all malignancies of the body involve the skin and 9-15% of cutaneous malignancies involve the eyelid about 40% of skin neoplasms are basal cell carcinoma. In peri orbital region basal cell carcinoma is the most common cutaneous malignancy and accounts for 85-95% of malignant eyelid tumor.

Predisposing factors:

Actinic radiation over a longtime

Trauma or Irritation

Chronic blepharitis

Eczema

Pressure of spectacles or squeezing of pimple

Old cicatrix, moles

Papillomata

H/O prior skin cancer

Previous radiation therapy.

As malignant eyelid lesions can masquarade as a no of clinically benign conditions all excised lesions should be submitted for HPE confirmation because it is not possible to obtain 100% accuracy in diagnosing lid tumors on clinical grounds alone.

Commonly occurring lid malignancies are in order of frequency

- Basal cell carcinoma
- Squamous cell carcinoma
- sebaceous gland carcinoma
- malignant melanoma
- kaposis sarcoma
- Lymphoma
- metastatic tumors.

Examination clues suggesting malignancy:

- destruction of normal eyelid margin architecture
- Loss of cilia, ulceration, heaped up pearly translucent margins
- Fine telangiectasia, Enlarging pigmented lesion
- Induration, schirrhus – retracted area.

Basal cell carcinoma

Distribution:

lower lid 50 –60%[23] Innercanthus 30%

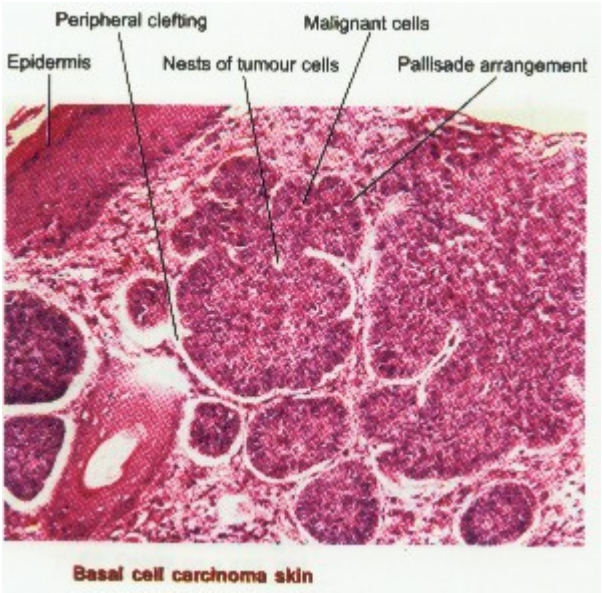
Upperlid 14% Outercanthus 6%

Average age at diagnosis is 60 yrs

Males are more affected than females

Basal Cell Carcinoma can present as nodular, diffuse, ulcerative or multicentric lesion, Nodular tumors present as Chronic, indurated non tender, raised pearly telangiectatic well circumscribed lesion with an elevated surround and a depressed crater like center.

Basal Cell Carcinoma



Histology

Growth patterns:

Undifferentiated	-	1) Nodulo ulcerative – most common mode of presentation 2) multicentric
Differentiated		Keratotic, cystic, adenoid, sebaceous Baso squamous or pigmented

Risk factors:

Fair skin colour, inability to tan, chronic sun exposure, immune dysfunction, Local trauma and Ionizing radiation. Basal cell carcinoma develops more frequently and at an earlier age than usual in several heritable syndromes like basal cell nevus syndrome, Xeroderma pigmentosum, and albinism

Microscopy:

Consists of nests of deeply basophilic cells that contain large oval basophilic nucleus and scanty cytoplasm without nucleus and mitotic activity. Peripheral pallisading of basal cells is characteristic. The stroma is rich in collagen and mucin and necrosis is common.

Spread:

Locally destructive and metastasis very rarely occurs. Frozen section monitoring of surgical margins at the time of surgery is preferable. Long term followup after surgery is essential to detect recurrences. Management is mainly surgical but there is a role for cryotherapy and radiotherapy in difficult situation. wide excision and frozen section monitoring or moh's surgery offer the best control rate.

Sebaceous carcinoma:

Arises more commonly in eyelids than anywhere else. Forms 1-5% of eyelid malignancies. Arises most commonly from meibomian glands of tarsus and sebaceous glands of hair follicles. Mean age at diagnosis is mid sixties. Usually occurs in females of middle age and over. Upper lid is 2-3 times more commonly involved than lower lid.

Sebaceous Gland Carcinoma – Nodular Pattern

Sebaceous Gland Carcinoma – Ulcerative Growth

It can present as

1) Focal mass 2) multicentric tumor

3) Diffuse lesion with pagetoid spread.

Simultaneous involvement of both lids occurs in 6-8% cases.

In majority of cases the tumor presents as a pseudo chalazion, chronic Blepharoconjunctivitis. Appears as tough, elastic tumor without ulceration. After curetting and incomplete excision slow growth is replaced by rapid malignancy

Spread:

To Orbit, Pre auricular and submandibular nodes or to parotid gland. Less commonly cervical nodes, Lung, pleura, liver brain or skull.

Poor prognostic factors:

- Invasion – Vascular / lymphatic or Orbital
- Diffuse involvement of both lids
- multicentric origin-presence of pagetoid invasion
- Tumor diameter > 10 mm
- symptoms present for > 6 months

Histopathology:

Shows lobules and cards of poorly differentiated infiltrating sebaceous cells containing foamy basophilic cytoplasm with prominent nucleoli and mitotic figures Lipid production can be demonstrated in fresh or frozen tissues with oil-red-O-stain. Tumor growth patterns may be lobular, comedo, acinar, papillary or combined forms. Frequently demonstrates pagetoid invasion 30% of sebaceous gland carcinoma recur after resection.

Treatment:

Complete surgical excision of the tumor with full thickness eyelid resection including 5-6mm of normal appearing tissue on each side. Cryotherapy can be used for diffuse lesion of conjunctiva with pagetoid spread.

In recent years there is an apparent increase in incidence of recognition of sebaceous carcinoma survival rate is 100% in pure Zeis gland tumours and 75% in meibobian gland tumors.

Squamous cell carcinoma: [9]

It is the second most common malignancy of the eyelids and represents 9% of periocular cutaneous cancer and < 5% of eyelid malignancies. It may develop denovo, but more commonly from precancerous dermatosis.

Presentation:

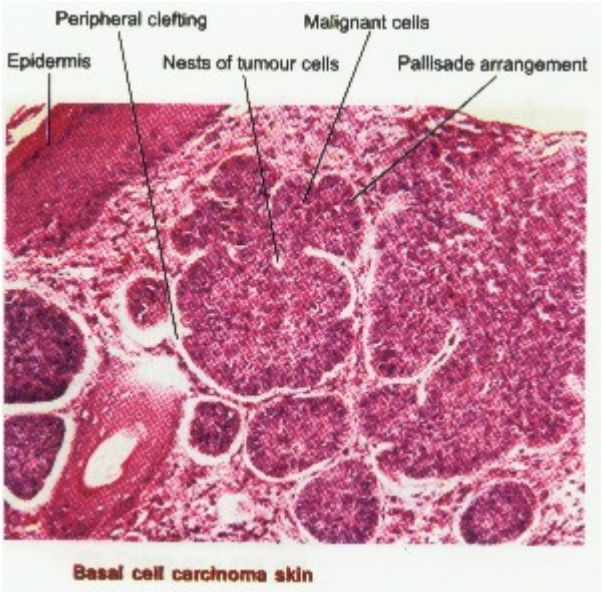
Occurs primarily in elderly individual with fair complexion with a history of chronic sun exposure. More commonly in men than women 2:1. lower eyelid is more commonly affected than upper lid 1.4:1 propensity for lesions to involve the lid margin and the medial canthus.

Precancerous lesions

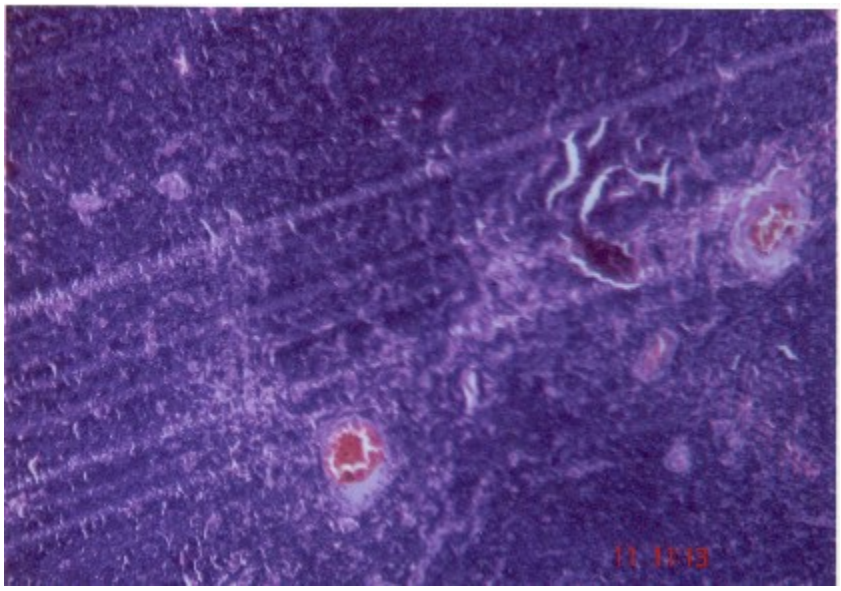
Actinic keratosis, Bowen's Disease, Radiation dermatoses, Xeroderma pigmentosum.

Clinical Presentation:

The lesion starts as painless nodular or plaque like lesion with rolled edges chronic scaling, fissuring of the skin with pearly borders, telangiectasias and central ulceration. Ulcers are typically shallow with a red base and sharply indurated with elevated borders. Occasionally manifested as papillomatous growths, cutaneous horns or cystic lesions along lid margin.



Histology



Non Hodgkins Lymphoma – Histology

Histology:

The epithelium shows complete disorganization with numerous atypical cells having large hyper chromatic nuclei and eosinophilic cytoplasm. Invasion of dermis is the hall mark of diagnosis of invasive type. In well differentiated forms eosinophilic cell nests or epithelial pearls are found.

Pattern of invasion and metastasis:

Squamous cell carcinoma exhibits an invasive pattern of spread with the potential for regional lymph node and distant metastasis. Direct extensions into the Orbital tissues from cutaneous Squamous cell carcinoma is generally associated with lesions that have been chronically neglected or Irradiated or recurred after treatment.

Treatment:

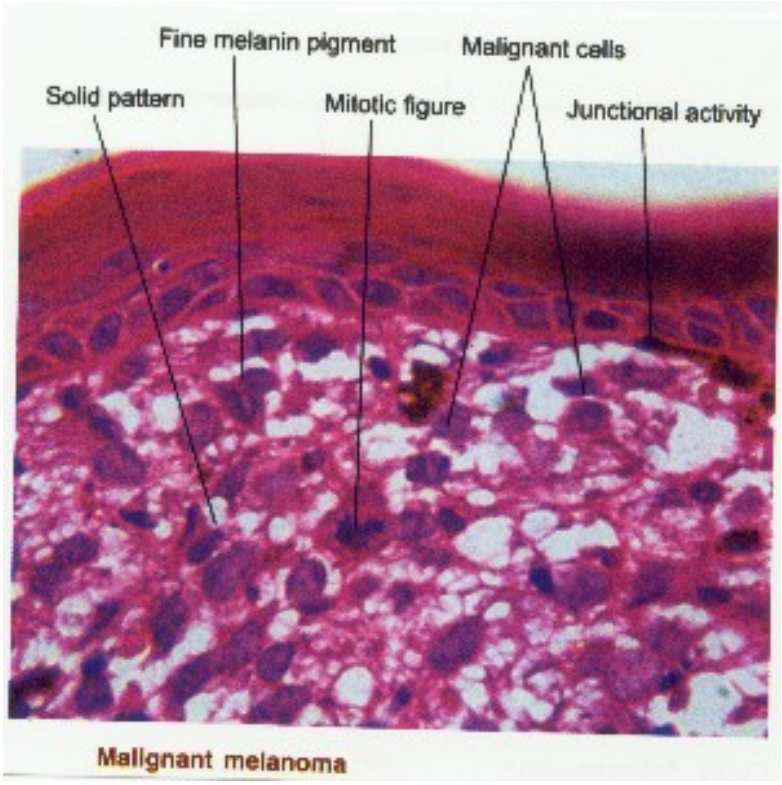
Microscopically controlled surgical excision using either frozen section control or moh's micrographic technique, Radiotherapy, cryotherapy, chemotherapy, photodynamic therapy. In cases with Orbital invasion, the treatment of choice is Orbital exenteration.

Malignant Melanoma [10]

Malignant melanoma accounts for about 5% of all skin cancers, primary cutaneous malignant melanoma of the eyelid skin is rare (<1% of eyelid malignancies). Melanomas should be suspected in any patient with an acquired pigmented lesion beyond the first two decades of life.

Cutaneous melanoma usually affects persons. Between 20-60 yrs of age eyelid is most often involved by either Lentigo maligna melanoma or nodular melanoma.

Malignant Melanoma



Histology

Signs suggesting malignant change are increase in size and pigmentation in Nevus, Satellite Nodules, Fixity, ulceration and haemorrhage in late stages. Tumor cells are highly anaplastic multinucleated tumor giant cells and mitotic activity are common. Pagetoid invasion of epidermis is characteristic.

Spread occurs by both lymphatic channel and blood stream. Preauricular and submandibular nodes are involved. Metastasis occurs to liver lungs brain, CNS and bones. Tumor thickness is most important predictor of prognosis. < 0.85mm is associated with good prognosis and >3.6mm poor prognosis. Surgery is treatment of choice.

Kaposis Sarcoma:

It is a common manifestation of AIDs, characterized by appearance of multiple, well defined purplish nodules in skin. Tumor foci occur on the conjunctiva and eyelids in approximately 20% of the patients. Lesions are violacious in colour. It can produce local irritation, ptosis, trichiasis infection and cosmetic disturbance. HpE shows proliferating capillaries, vascular endothelial cells and atypical fibroblast like cells. Local control is achieved with low dose radiation therapy (25-25 gy of photon and electron.) Occult. HIV disease should be thought of in a young person with an atypical hardeolum or SCH as Kaposis sarcoma sometimes mimic these common lesions.

Lymphoid lesions:

It can occur in the course of acute or chronic lymphocytic or monocytic Leukaemia. Tumour forms Illdefined nodular mass frequently bilateral and symmetrical. The Lacrimal gland and krause's glands may become infiltrated and the conjunctiva may show a follicular hypertrophy or nodular infiltration. A solitary

eyelid mass can be an initial sign of anaplastic large cell lymphoma in children. Mycosis fungoides, a T cell lymphoma can affect the eyelid skin.

Lesions are made up of dense masses of lymphocytes. These are radiosensitive but not curable. Surgical excision is usually followed by recurrences, but subsequent radiotherapy gives satisfactory outcome.

Metastatic Tumors:

Rare event, most common sources are breast carcinoma in females and lung carcinoma in males. Bilateral infiltration can occur. Presents as swelling of lids, ptosis and diplopia. Occurs in 3 forms 1) Solitary, subcutaneous painless nodule 2) non tender thickening and induration of eyelid 3) ulcerating lesion of the eyelid.

Survival period after eyelid metastasis are noted in less than 1yr.

Other rare malignancies:

Mucinous eccrine carcinoma:

Is more common at other sites and metastasis Occur in eye. So consider a distant primary (esp. breast carcinoma) on diagnosis.

Merkel cell neoplasm:

Is emerging as an important neoplasm of eyelids. Presents as solitary painless violaceous nodule near lid margin and surface skin shows telangiectasia. This aggressive tumor has both local and metastatic spread. Diagnosed by electron microscopy showing characteristic dense core granules.

Management of Eyelid tumors:

Management depends on correct histologic diagnosis assessment of tumor margins and the extent of systemic spread. Moh's surgery or complete surgical excision with frozen section control of the margins offers the lowest tumor-recurrence rate.

Non surgical treatment:

Lack of histologic monitoring remains a significant disadvantage of all Treatment modalities except surgical excision.

1. Curettage and electrodesication
2. cryotherapy (cryosurgery)
3. Radiotherapy
4. Intra lesional corticosteroids
5. Laser therapy
6. Interferons
7. Chemotherapy

Curettage and electrodessication:

This method is useful for seborrheic keratosis molluscum and warts, it is performed under local anaesthesia. Light electrodessication just to soften the tissue, so that it may be curetted easily.

Cryotherapy

Cryotherapy has been found to be useful for treating lesions of the eyelid ranging from malignant tumors such as BCC to benign lesions such as warts. Treatment involves under LA rapid freeze and slow thaw. Ideal tissue temperature is -40^0c to -50^0c with a freezing temperature of 100 degree c/min and a thawing temperature of 10^0 c/mt two or three freeze-thaw cycles are typically used. Complications are depigmentation, hyperpigmentation, loss of lashes, malposition of the lid margin. New method of treating tumors > 10mm in size is fractional cryotherapy.

Radiotherapy and Electron beam therapy:

Solitary sessile papilloma affecting more than 1/3rd of lid margin, multiple papilloma of lid and conjunctiva repeated recurrence after surgical removal, capillary Haemangiomas, malignant or nodulo ulcerative Basal Cell Carcinoma not involving medial canthal area are treated by this. For Basal Cell Carcinoma, a total range of 35-65 Gy given in fractionated doses after meticulous shielding of the eye.

Complications are loss of lashes, atrophic and necrotic skin changes. malposition of the eyelids, chronic dermatitis, dry eyes, corneal ulcer and obstruction of tear ducts and surgical repair is difficult after radiotherapy.

Intra lesional corticosteroids

This is the most promising advancement in the treatment of capillary haemangiomas. Kushner's regimen is most commonly used and he recommends separate injections of 40mg triamcinolone and 6mg betamethasone acetate and betamethasone phosphate usually 1-2 ml. Most tumors may require 2 or more sittings of the injections. Involution of the tumor may begin several days after injection and will usually be considerable in 2-4 weeks.

Carbondioxide Laser therapy

Used in tumors like capillary haemangioma Basal cell carcinoma, papillomas, cysts, actinic and seborrheic keratosis. This modality coagulates small blood vessels. An area of coagulation ulcer develops and the affected region is permitted to granulate. It seals lymphatics and thus prevents lymphatic spread of the tumor.

Chemotherapy:

Systemic and local chemotherapy has been used on patients with non resectable Basal cell carcinoma and Squmous cell carcinoma Useful in patients who refused extensive surgery or medically unfit to undergo operation. Local application using 5 Fluro uracil cream, cisplatin and Doxorubicin was accomplished by Iontophoresis.

Interferons:

Intra lesional injections of interferon alpha has been used to treat primary Basal cell carcinoma and also capillary haemangiomas.

Surgical management

The main aim of surgery is to remove the entire tumor but at the same time to preserve as much normal tissue as possible. Two principle methods of surgery available

1. Standard surgical resection with frozen secion control.
2. Moh's micrographic surgery

Standard resection:

In case of malignant tumors a full thickness section of eyelid with 3-5mm of normal tissue should be removed. All tissue margins around an excised malignant tumor should be histologically examined under frozen section to ensure complete removal.

Advantages:

Complete tumor removal with histological control of margins, universal availability, highest cure rate and reduced recurrence rate, Superior cosmetic result

Disadvantages:

More time consuming, sacrifice of large amount of normal tissue, need for a trained experienced pathologist.

Moh's micrographic surgery:

The micrographic method has an advantage over frozen sections because it provides a three dimensional view of the tumor through histologic drawings and markings. In this manner only areas that demonstrate evidence of tumor are excised which results in less extensive surgical removal of tissue and an improved chance of a better functional reconstructive result especially in morphea form Basal Cell Carcinoma in young patients and recurrent eyelid Basal Cell Carcinoma , tumors > 2cm and tumors that have extensive subclinical spread.

Marginal shave excision: [12]

Elevated benign lesions of the eyelid margins that don't have deep extension and that don't involve eyelash cilia can be shared off flush to the level of the desired lid margin contour. The cut lid margin surface is lightly treated with electrocautery.

Transmarginal pentagonal wedge resection

Lesions involving the lid margin or the full thickness of the eyelid can be excised by performing a pentagonal wedge resection. This is commonly used to excise malignancies occurring near the lid margin. In young patients approximately one-fourth of the upperlid width can be excised and closed primarily. In adults upto one third can be removed with primary closure without producing cosmetic or functional defects.

Priorities in eyelid reconstruction are

- Development of a stable eyelid margin
- Provision of adequate vertical eyelid height
- adequate eyelid closure
- Smooth epithelialized internal surface
- maximum cosmesis and symmetry.

General principles in eyelid reconstruction: [13]

- Reconstruct either the anterior or the posterior eyelid lamella with a graft but not both. One of the layers must provide the blood supply. (pedicle graft) A graft placed on a graft has a high likelihood of failure.
- maximize horizontal tension and minimise vertical tension.
- maintain sufficient and anatomic canthal fixation.
- match like tissue to like tissue
- Narrow the defect as much as possible before sizing a graft.
- Choose the simplest technique
- Don't create a defect you can't close
- Get help from a specialist if you need.

<u>Eye defects not involving the eyelid margin:</u>

Defects not involving the eyelid margin can be repaired by direct closure if this procedure does not distort the eyelid margin. If undermining does not allow direct closure, advancement or transposition of flaps of skin may be used. Tension of closure should be directed horizontally to avoid secondary deformity. Vertical tension may cause eyelid retraction or ectropion

If the defect is too large to be closed primarily, several advancement or transposition techniques of local skin flaps may be used. The flaps most commonly used are rectangular advancement, rotation and transposition.

Anterior lamella upper lid defects are best repaired with full thickness skin grafts from the contalateral upper lid. Pre auricular or retroauricular skin grafts may be used but their thickness may limit upper lid mobility Lower eyelid defects are best filled with preauricular or retroauricular skin grafts. Full thickness grafts also obtained from the supraclavicular fossa or the inner upper arm. Avoid hair bearing skin grafts and split skin graft in eyelid reconstruction.

Eyelid defects involving the eyelid margin

1) Small upper eyelid defects:

Small defects involving the upper eyelid margin can be repaired by direct closure if this technique doesn't place too much tension on the wound. Direct closure is usually employed when 33% or less of the eyelid margin is involved. If a larger area is involved advancement of adjacent tissue or grafting of distant tissue may be required. Superior limb of the lateral canthal tendon can be cut to allow 3-5mm of medial mobilization of the remaining lateral eyelid margin.

<u>Moderate Upper eyelid defects:</u>

Moderate defects (33% - 50%) can be repaired by advancement of the lateral segment of the eyelid. The lateral canthal tendon is incised and a semicircular skin flap is made below the lateral portion of the eyebrow and canthus to allow for further mobilization of the eyelid. Tarsal-sharing procedures in upperlid also been described.

Large upper eyelid defects;

Upper eyelid defects involving more than 50% of the Upper eyelid margin require advancement of adjacent tissues. A full thickness lower lid flap may be advanced into the defect of the upper lid by passing it behind the remaining lower lid margin (cutler-Beard procedure). This procedure results in thick and relatively immobile upper eyelid. Alternatively a free tarsoconjunctival graft taken from the contralateral upper eyelid Can be positioned and covered with skin-muscle flap if adequate redundant upper eyelid skin is present.

Small lowereyelid defects: [14]

Small defects <33% can be repaired by primary closure. In addition the inferior crus of the lateral canthal tendon can be severed to allow an additional 3-5mm of medial mobilization of the remaining lateral eyelid margin.

Moderate lower eyelid defects.

Semicircular advancement or rotation flaps which have been described for upper eyelid repair can be used to reconstruct moderate defects in the lower eyelid as well. The flap used is a modification of Tenzel Semicircular rotation flap. To reconstruct posterior lamella of the lower eyelid, defect tarsoconjunctival autograft harvested from underside of upper lid is used. Marginal 4-5mm height of tarsus should be preserved in order to prevent distortion of donar eyelid margin. Cheek elevation also required in order to avoid vertical traction on the eyelid and ectropion.

Large lower eyelid defects:

Defects larger than 50% of the lower eyelid margin can be repaired by advancement of a tarso conjunctival flap from the upper eyelid into the posterior lamellar defect of the lower eyelid. The anterior lamella is then created with an advancement skin flap or a free skin graft taken from preauricular or retroauricular area (modified Hughes procedure). This procedure results in placement of a bridge of conjunctiva from the uppereyelid a cross the pupil for several weeks. The vascularised peidcle of conjunctiva is released in a staged second procedure once the lower eyelid flap is revascularised. Therefore eyelid sharing techniques should be avoided in children under age 7 who may develop occlusion amblyopia as a result.

Mustarde's Procedure:

For large anterior lamellar defects, need large rotating cheek flaps with some tarsal substitute such as a free tarsoconjuctival autograft, hard palate mucosa or a Hughes flap for posterior lamellar replacement. Free tarso conjunctival autografts from the upper eyelid covered with a vascularised skin flap have been used to repair large defects as well. This procedure has the advantage of requiring one surgical stage and avoids temporary occlusion of the visual axis.

Lateral canthal defects:

Laterally based transposition flaps of upper eyelid tarsus and conjunctiva can be used for large lower eyelid defects, extending to the lateral canthus. These flaps can be covered with free skin grafts. Semicircular advancement flaps of skin can also be used to repair defects extending to the lateral canthal area.

Medial canthal defects:

Full thickness skin grafting or flap reconstructions are more widely accepted repair techniques for medial canthal defects when full thickness medial eyelid defects are present, the medial canthal attachments of the remaining eyelid margin must be fixed to firm periosteum by means of permanent suture or wire or titanium manipulates.

Exenteration:

It is a destructive surgery and involves removal of all the contents of orbit along with periosteum and is advocated in management of malignanat eyelid tumors that infiltrate orbit and globe. Following surgery the granulation tissue is allowed to proliferate and cover orbital walls. Split skin graft or mucus membrane can be used to cover orbital walls. After this the patient is provided with spectacle mount prosthesis to overcome the cosmetic defects.

AIMS OF THE STUDY

TO ANALYSE

1. The incidence of eyelid tumors
2. Pattern of presentation
3. Laterality of presentation
4. Clinical co-relation with histopathological report
5. Surgical management of eyelid tumors with reconstruction of eyelid
6. Role of Radiotherapy in the management of malignant tumors.

Materials & Methods

The analytical study of eyelid tumors and their management is a prospective study of patients who presented to the OPD of Coimbatore Medical College Ophthalmology department. Patients with benign and malignant eyelid tumors who have undergone various modalities of treatment have been included in this study.

A standard clinical proforma was filled. Salient features in history, regarding the onset of tumor, ulcer of the eyelid its progression presence of pain, bleeding or discharge from the tumor, duration of growth, laterality, previous surgical treatment H/o recurrence etc. were noted.

Patients were subjected to basic investigations which included a complete blood picture, a routine urine examination and x-ray chest, x-ray skull was performed in patients with malignant eyelid tumors. If there was clinical evidence or suspicion of metastasis, CT scan brain and orbit was done.

Each tumor was studied histopathologically with the help of excision, wedge biopsy and the defect in the eyelid was reconstructed using appropriate reconstruction procedure.

All operable tumors were treated in our hospital. Patients with advanced stage of malignancies with or without lymphnodes were referred to plastic surgery. Patients were discharged after wound healing and followed up at regular intervals.

Some patients who required adjuvant radiotherapy or chemotherapy were referred to the department of Radiology for appropriate treatment.

On each of the follow up Visits, patients were examined in detail to look for recurrence or systemic metastasis.

Proforma

Name of the patient : Date of Admission :

Age/Sex : Date of Operation:

Hospital number : Date of Discharge:

Occupation :

History:

Onset

Progress

Pain

Discharge/bleeding

Similar lesions elsewhere

Trauma

Defective vision

Treatment - Medical / Surgical

Personal History

Diabetes

Hypertension

Loss of weight / appetite

Bowel / Bladder habits

On examination:

Vision

Extraocular movement

Bony orbits

Lids

Tumor/ulcer

Upperlid, lowerlid

medial / lateral canthus

margin involved

size, shape margin, measurement

Base/floor of ulcer

Discharge / Blood

Tenderness, consistency

Skin around the tumor

Mechanical ptosis / ectropion

Madarosis, Trichiasis

Extension to adjacent structures

Adherence to bone / globe

Conjunctiva

Extension of tumor

Bulbar / Palpebral

Congestion, discharge

Cornea

Ant chamber

Iris

Pupil - reaction to light

Direct

Consensual

Accommodation

Lens

Fundus

Lacimal passages

Intraocular pressure

Lymph Nodes:

Pre auricular, submandibular, submental, cervical nodes size, consistency, mobility tenderness

General examination

Abdominal examination

Respiratory system

Cardiovascular system

Central Nervous system

Clinical impression:

Investigations:

Blood : Hb, Tc, Dc, ESR, peripheral smear, Fasting Blood Sugar, Post Prandial Blood sugar, urea, creatinine,

serum electrolytes, liver function test , Grouping, cross matching

Urine: Routine / microscopy

X-ray : Chest PA view

Skull AP, Lateral

CT scan brain and Orbit

Histopathology Gross

Microscopy

Impression

Treatment:

1. Medical
2. Surgical - excision of tumor
   Reconstructive procedure
   Primary closure
   Flap / Graft or
   Exenteration
3. Adjuvant therapy - Radiotherapy / Chemotherapy

Follow up

1st month

3rd month

6th month

Late

Examination of surgical site / flap/graft

Recurrence

metastasis Local

systemic

Lymphnode

Observations

This study did not include the commonest eyelid inflammatory lesion like Hardeolum Externum and chronic granuloma like chalazion .

1. TOTAL NUMBER OF PATIENTS - 65

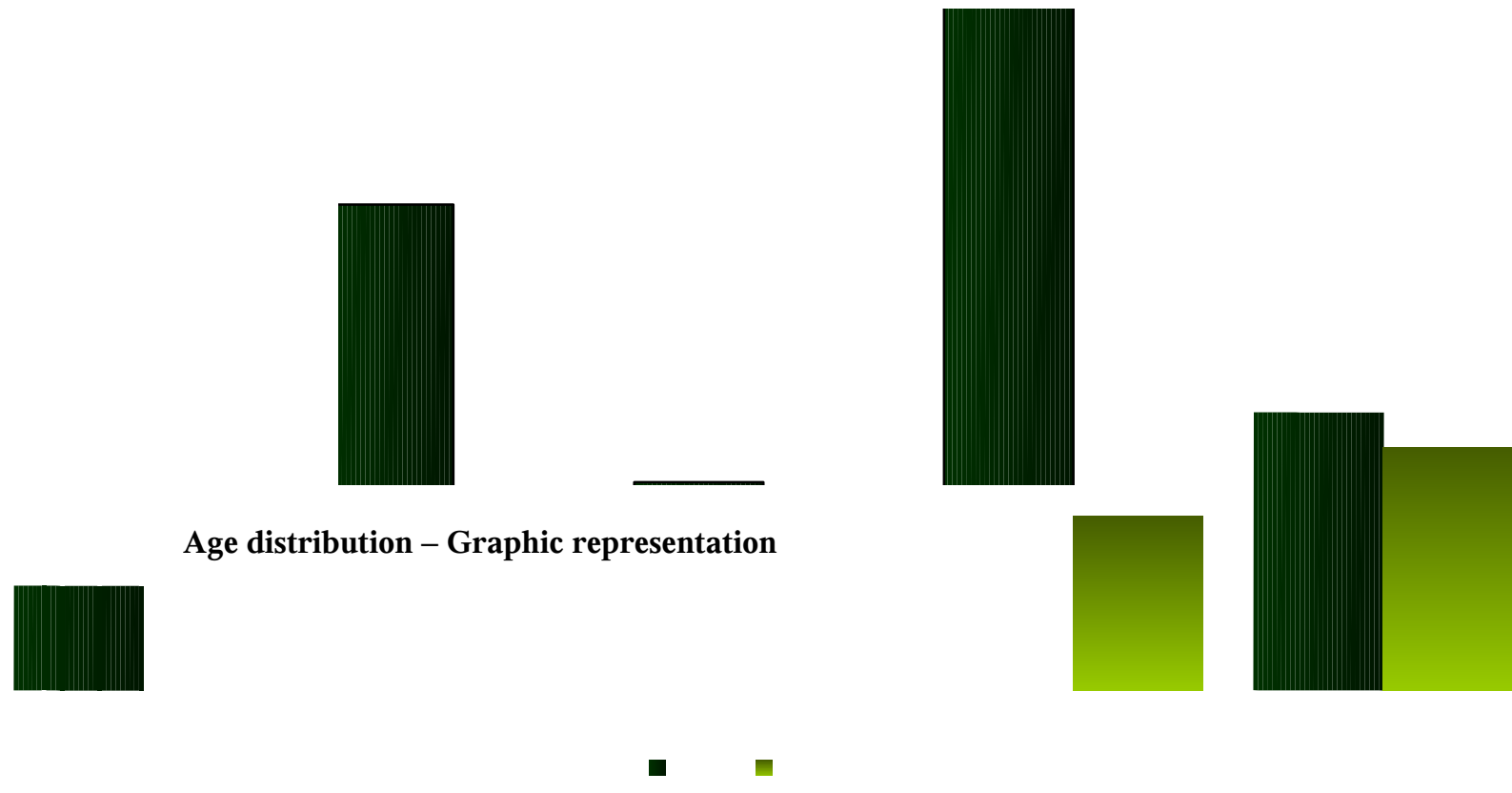
Among these 53 patients (81.53%) had benign eyelid tumors and 12 patients (18.46%) had malignant eyelid tumors.

2. Age Distribution

Age group	**Benign**	**Malignant**
< 10 yrs	3	
10-29 yrs	14	
30-40 yrs	6	
41-60yrs	22	5
> 60 yrs	8	7
	---	---
	53	12

In our study benign tumors were more common in the age group between 41-60 yrs and malignant tumors were common between 60-70yrs.

This fact is in comparable with a study conducted at department of Ophthalmology / college of medicine / Korea university Ansan hospital / south Korea Address ophthalmologica 2006 : 220: 43-51



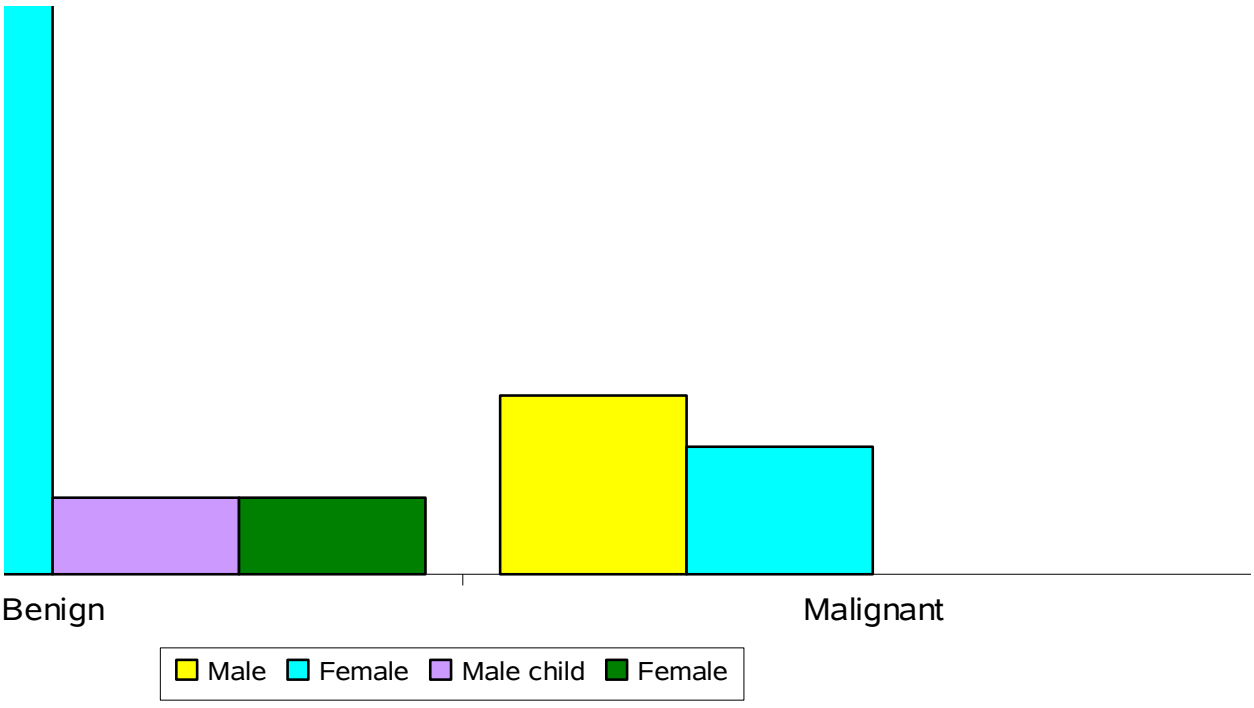
Age distribution – Graphic representation

3.	**Age distribution of Individual malignant tumors**	**Range**	**No.**
	Basal cell carcinoma	55-65yrs	5
	Sebaceous adenocarcinoma	65-70yrs	3
	squamous cell carcinoma	60-70yrs	1
	Malignant melanoma	60-70yrs	1
	lymphoid lesions	50-60yrs	2

4. Sex distribution

	Male	**Female**	**Male Child**	**Female Child**
Benign	18	29	3	3
Malignant	7	5	-	-

In our study female patients were affected more in benign tumors and male patients were affected more in malignant tumors.



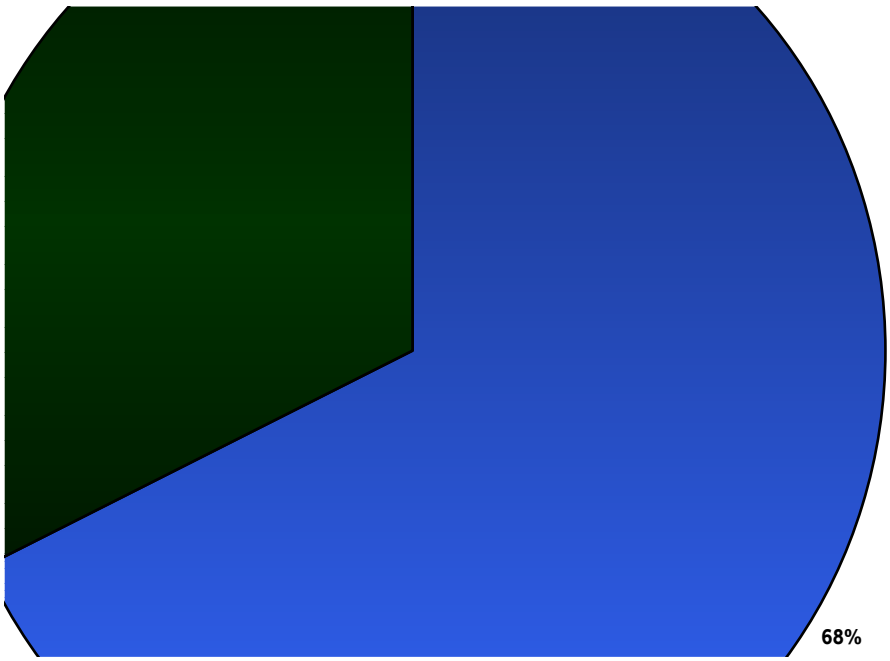
5. Sex distribution among Individual malignant tumors.

	Malignant tumors	Male	Female
1.	Basal Cell Carcinoma	3	2
2.	Sebaceous adeno carcinoma of meibomian gland	1	2
3.	Sqamous cell carcinoma	-	1
4.	Malignant melanoma	1	-
5.	lymphoid tumor infiltrations	2	-

6.	**Lid Involved:**	**Benign**	**Malignant**
	Upper lid	36(67-92%)	3 (25%)
	lower lid	17 (32.07%)	9(75%)

In our study benign tumors were commonly found in upper lid and malignant tumors were commonly found in lower lid.

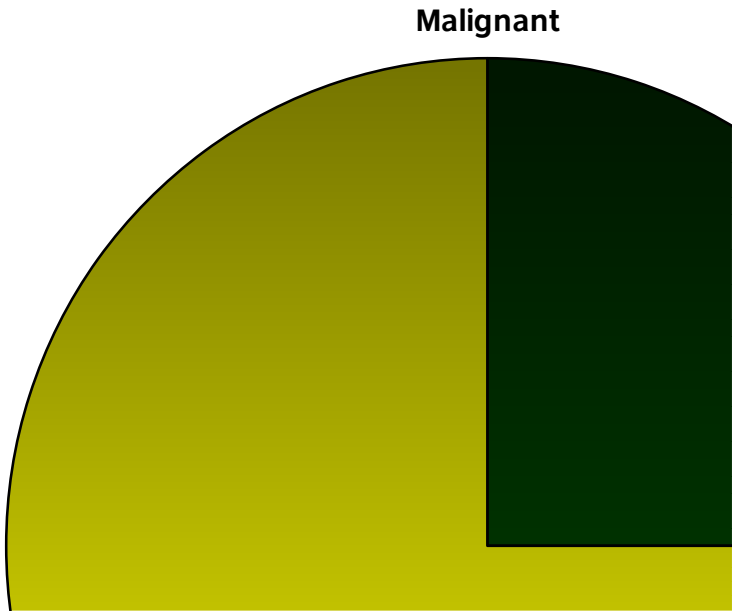
LID INVOLVED



MALIGNANT EYELID TUMORS		upper lid	lower lid
1.	Basal cell carcinoma	- (0%)	5(100%)
2.	Sebaceous adeno carcinoma of meibomian gland	2 (66.66%)	1(33.33%)
3.	Squamous cell carcinoma	1 (100%)	-
4.	Malignant melanoma	-	1 (100%)
5.	lymphoid tumors	-	2

In our study all the basal cell carcinoma were in lower eyelid

LID INVOLVED



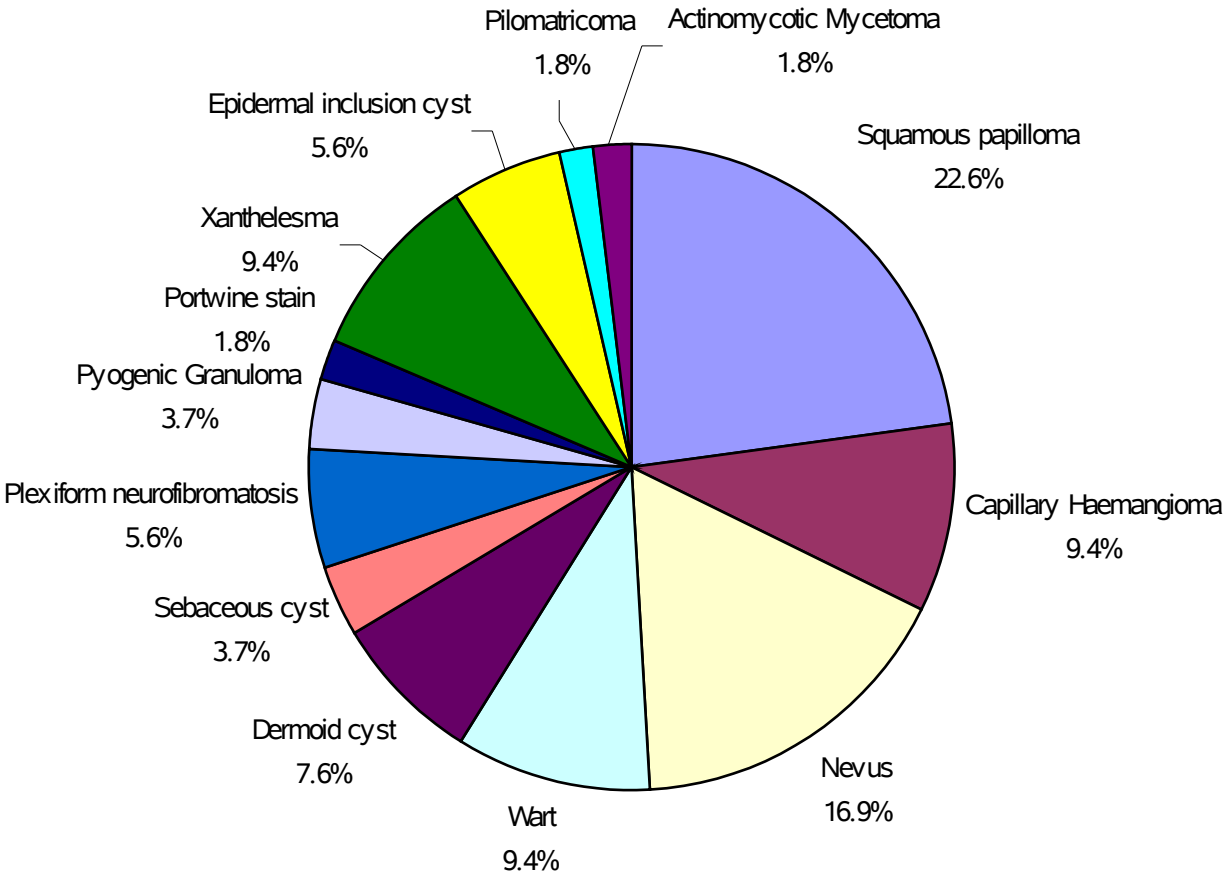
Among 3 sebaceous adenocarcinoma of meibomian gland 2 were in upper eyelid and one was in lower eyelid.

7. Incidence of Individual tumors:

	Benign	
1.	Squamous papilloma	12 (22.6%)
2.	Capillary Haemangioma	5 (9.4%)
3.	Nevus	9 (16.9%)
4.	Wart	5 (9.4%)
5.	Dermoid cyst	4 (7.5%)
6.	Sebaceous cyst	2 (3.7%)
7.	Plexiform neurofibromatosis	3 (5.6%)
8.	pyogenic granuloma	2 (3.7%)
9.	portwine stain	1 (1.8%)
10.	Xanthelesma	5 (9.4%)
11.	epidermal inclusion cyst	3 (5.6%)
12.	pilomatricoma	1 (1.8%)
13.	Actinomycotic mycetoma	1 (1.8%)
		53

Squamous papilloma constituted the most common lesion among the benign eyelid tumors.

INCIDENCE OF INDIVIDUAL TUMORS – BENIGN

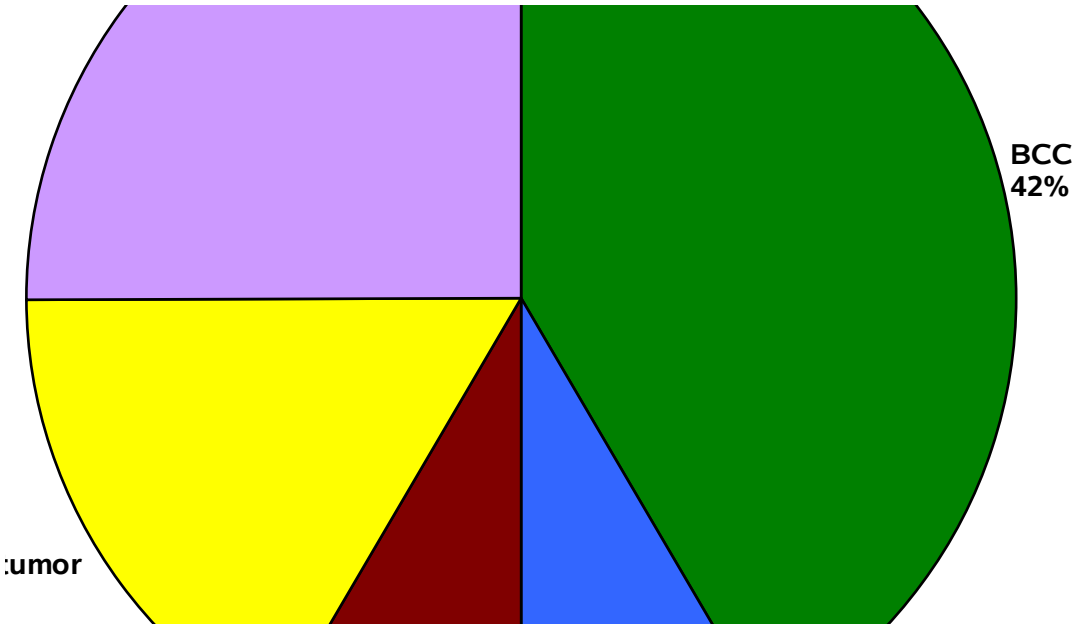


8. Incidence of Individual tumors among malignant

1.	Basal cell carcinoma	5 (41.6%)
2.	Sebaceous adeno carcinoma of meibomian gland	3 (25%)
3.	squamous cell carcinoma	1 (8.3%)
4.	malignant melanoma	1 (8.3%)
5.	Lymphoid tumors	2 (16.6%)

Basal cell carcinoma is the commonest malignant eyelid tumor and affects commonly lowereyelid. Next most common tumor is sebaceous adeno carcinoma of meibomian gland

INCIDENCE OF INDIVIDUAL TUMORS – MALIGNANT



9. Clinical presentation

Presentation	Basal cell carcinoma	Meibomian gland carcinoma	Squamous cell carcinoma	Malignant melanoma
Nodule	-	1	1	1
Ulcer	2	-	-	-
Ulcerative growth	3	2	-	-

The most common presentation of malignant eyelid tumors was in the form of ulcerative growth pattern. Majority of Basal Cell Carcinoma presented in the form of ulcer with elevated margin.

Sebaceous adeno carcinoma of meibomian gland presented in the form of Nodule and ulcerative growth pattern. squamous cell Carcinoma and malignant melanoma presented as nodular pattern.

10. Predisposing factor:

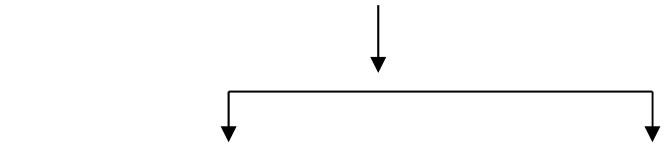
Exposure to sunlight as a predisposing factor has been described most often in literature for squamous and Basal cell carcinoma. In our study among malignant tumors 2 Basal cell carcinoma were found to have occurred following prolonged sunlight exposure.

11. Tumor Infiltration:	Eye ball	Skin and Bone	Eye ball Skin and Bone
Basal cell carcinoma	-	3	1
Sebaceous adeno carcinoma of meibomian gland	2	-	-
Squamous cell carcinoma	-	1	-
malignant melanoma	-	1	-

In our study tumor infiltration of the eyeball was most common in case of sebaceous adenocarcinoma of meibomian gland. Al though basal cell carcinoma may invade the eyelids and orbit, intra ocular invasion was rare. The lesion seldom metastasizes and rarely causes death. In our study one patient with basal cell carcinoma who refused for surgery ten year back presented with infiltration of skin, bony orbit and eyeball with maggots in orbit.

12. Management:

1. Benign tumors



non surgical management | surgical management

1. Treatment with intralesional steroids

1. Simple excision with primary closure

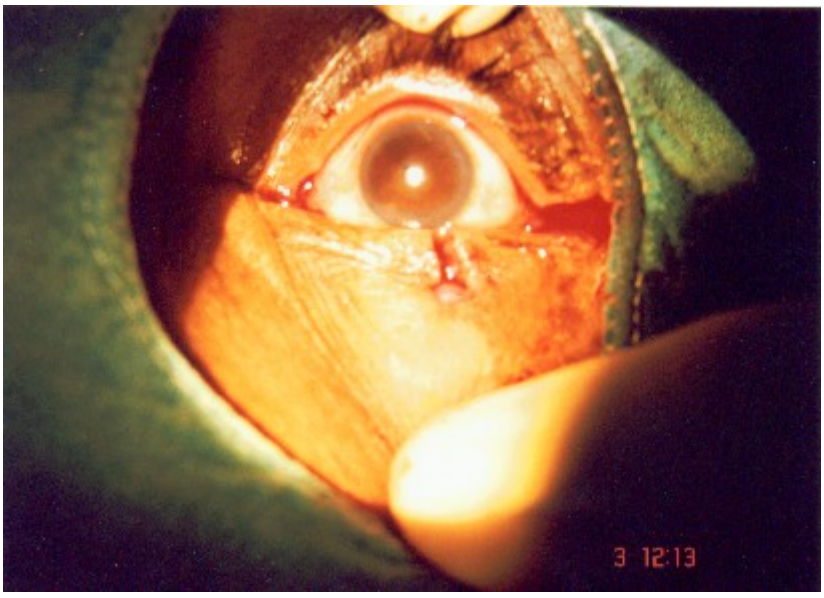
Most of the benign tumors were treated by excision and simple closure. Post operative period was uneventful and the wound healed well without any complication.

Intralesional steroid injections were used to hasten resolution due to capillary haemangioma. In our study among 5 children, 3 children responded well to intralesional steroid injections. The remaining 2 children were left as such for observation.

Malignant tumors:

	1^0 ary closure	**With Cantho-lysis**	**Rotation flaps**	**Exenteration followed by chemotherapy**	**Radio Therapy**
Basal cell carcinoma	2	1	1		1
Sebaceous adenoca of meibomian gland	1	1	1	-	
Squamous cell carcinoma	-	-	-	1	
Malignant melanoma	-	-	-	1	
Iymphoid tumor	2	-	-	-	

Squamous Papilloma – Verrucoid Type



After Excision

Squamous Papilloma – Before Excision

After Excision

Sebaceous Cyst – Before Excision

After Excision

Basal cell carcinoma:

- 2 patients who had Basal Cell Carcinoma involving ¼ of lower eyelid mass, was excised by a pentagonal incision and the resulting defect was closed by direct approximation in three layers. (Conjunctiva and tarsus, orbicularis muscle, and skin). In one patient there was difficulty experienced with primary closure by direct approximation. So lateral cantholysis was performed in order to relax the rest of the eyelid and to allow sound closure of the defect.

- In another patient there is involvement of 50% of lower eyelid mass in the lateral aspect, a modification of the Tenzel Semicircular rotation flap was done. Tarsoconjunctival autografts harvested from the underside of upper eyelid and transplanted into the lower eyelid defect to reconstruct the posterior lamella of the eyelid

- One patient with advanced Basal Cell Carcinoma who was diagnosed as Basal Cell Carcinoma 15 yrs back and advised surgery at that time was not willing for surgery. He didn't turn up for follow-up after that. But when we saw in our department one year back, he had soft tissue ulcerated lesion seen over the right lower lid with invasion of (Rt) maxilla, (Rt) Zygoma and floor of (Rt) orbit. He was advised exenteration as the primary procedure because he had orbital infiltration of the tumor on presentation. As he was not willing for surgery, palliative external radiotherapy was given.

Basal Cell Carcinoma – Before Radiotherapy

Basal Cell Carcinoma – After Radiotherapy

Sebaceous adeno carcinoma of meibomian gland:

One patient out of 3 with ulcerated mass 2cm x 1cm over upper eyelid involving more than 50% of the eyelid extends from upper border of tarsus to lid margin. The tumor was excised from the upper lid. Cutler.Beard lower lid bridge flap was advanced into the defect. Second stage reconstruction was performed after 4-12 weeks.

The remaining 2 patients, one with tumor on upper lid 1/4th medial aspect, and another with tumor on lower lid 1/4th lateral aspect, underwent simple excision and direct closure of the defects in 3 layers

Squamous Cell Carcinoma

In our study only one patient presented with swelling over upper lid 2cm x 2cm with complete ptosis with tarsal conjuctiva ulcerated underwent inscisonal biopsy first and the report came as invasive squamous cell carcinoma of moderately differentiated grade. CT orbit shows soft tissue neoplasm (Rt) eyelid with orbital extension. As there was infiltration of globe with orbital extension, exenteration was done with skin graft.

Malignant Melanoma

One patient presented with pigmented irregular granulated growth occupying 2/3rd of lower lid in lateral aspect with growth extending upwards infiltrating the orbit with extensive ulceration. Biopsy proved as malignant melanoma presumably arising from skin of lower lid involving entire lateral canthus with kissing lesion in upper lid. As the lesion was extensive patient underwent exenteration and a course of radiotherapy was given.

Squamous Cell Carcinoma – Invasive type

After Exenteration with skin graft

13. Rare presentations of eyelid tumor

	M	F	
1. Non- Hodgkins lymphoma	1	-	-
2. Actinomycotic mycetoma	-	1	-

1. Non Hodgkins lymphoma

One patient of age 42 /m presented with swelling Right eye lower eyelid of size 3 cm X 3 cm in the lateral aspect. Excision biopsy was performed. The report came as infiltrations of non Hodgkins lymphoma and we referred the case to oncology department for further evaluation.

2. **Actinomycotic mycetoma**

One patient of age 15/F presented with swelling right lowereyelid of size 2 cm X 0.5cm in the lateral aspect for the past 2 years. Initially biopsy was performed and the report came as Actinomycotic mycetoma following which the mass was excised in toto.

Non Hodgkins Lymphoma before excision

After excision

DISCUSSION

- In our Study we have analysed 65 patients. Out of which 53 patients (81.53%) had benign eyelid tumors and 12 patients (18.46%) had malignant eyelid tumors . This is comparable with a study by chiaks, lee HP [J-1]
- Median age of diagnosis for Benign tumors were between 40-50 yrs and malignant eyelid tumors were between 60-70yrs which is similar to the studies conducted at the University Alabama by swanson MW [J-2] and H-P lee [J-.3]
- Female patients were more commonly affected by benign tumors and male patients were more commonly affected by malignant tumors as per a study proved by Hara yet all [J-4].
- Among malignant eyelid tumors Basal cell carcinoma is the most common tumor accounting for 41.6%. Sebaceous adenocercinoma of meibomian gland accounted for 25%.This is similar to the studies by American family physcian Nick mamalies [J-5] and also Lober CW [J-7]
- Among Benign eyelid tumors squamous papilloma is the most common tumor as per our study which is similar to the studies by korea university at Ansan hospital[6] [J-6]
- Basal cell carcinoma commonly affects lowerlid and Sebaceous adenocarcinoma of meibomian gland commonly affects upperlid as per our study which is comparable to the studies by Hiroshi [J-9] at Yamagata university and a study paper by Hamada et all [J- 10] proved that among 69

periocular Basal cell carcinoma , 76% of Basal cell carcinoma were on lower lid.

- Squamous cell carcinoma is generally regarded as the second most common malignancy in the eyelid as per the studies by American family physician NICK mamalis et al [J- 11] which is in contrast to our study which proved sebaceous adeno carcinoma of meibomian gland is the second most common malignancy in the eyelid. This could be attributed to the increased incidence of sweat factor and high humidity in southern coastal areas. Meibomian gland carcinoma commonly affects upper lid. in our study possibly reflecting greater number of meibomian gland in the upper lid. This is proved in a study by kass LG and Hornblass [J-12] & clinical analysis of 60 cases of malignant eyelid tumors by kawana kiyoshi [J- 13] meibomian gland adenocarcinoma is twice as common in females as in males as per A sihote R and Tandon K [J-14.]
- The only squamous cell carcinoma in our study occurred in upperlid. In a retrospective review of eyelid squamous cell carcinoma treated between 1942 and 2001 by MJ Donaldson [J-15] found that Squamous cell Carcinoma affected lower eyelid in 31 patients among 50 patient, also males were more commonly affected.
- The most common presentation of malignant tumors of the upper eyelid was in the form of ulcerative growth. Majority of Basal cell carcinoma presented in the form of ulcer [J-16], [J-17] with elevated margins. Whereas meibomian gland carcinoma presented in the form of a nodule and

ulcerative growth [J-18]. Squamous cell carcinoma and malignant melanoma presented as nodular pattern.

- Exposure to sunlight as a predisposing factor has been described most often in literature [J-19, J-20] for Basal cell carcinoma. In our study among malignant tumors 2 Basal cell carcinoma were found to have occurred following prolonged sunlight exposure.
- Although Basal cell carcinoma may invade the eyelids and orbit, intraocular invasion is rare. The lesion seldom metastazies and rarely cause death. The incidence of metastasis is only 0.028% to 0.55% in a study by NICK mamalis [J-5]. Although extension to the globe was more common in meibomian gland carcinoma as per a study by marles zurcher [J- 21] in moorfields eye hospital London, our study proved only one meibomian gland carcinoma of upper lid was found to invade globe.
- Regarding management for Basal cell carcinoma surgical excision was generally regarded as the definitive method of treatment. Mohs micrographic surgery is considered the gold standard for the complete excision of the tumor [J-22]. Following excision of the tumor, the eyelid should be reconstructed by standard oculoplastic procedures. Cryotherapy might be a reasonable choice for the treatment of periocular nodular or nodulo ulcerative Basal Cell Carcinoma in patients who are poor candidates for surgery [J-23,J- 24]. In neglected cases of basal cell Carcinoma, external radiotherapy is the treatment as proved with one case in our study.

Summary:

A total of 65 patients (53 benign (81.53%) and 12 malignant (18.46%)) with eyelid tumors were studied. Benign tumors were more common than malignant tumors. Benign tumors were common in the age group between 41-60yrs and malignant tumors were common between 60-70yrs. Female patients were more commonly affected by benign tumors and male patients were affected more commonly by malignant tumors. Benign tumors were commonly found on upper lid and malignant tumors were commonly found on lower lid.

Among Benign tumors squamous papilloma is the commonest tumor next comes the wart. Among malignant eyelid tumors Basal cell carcinoma is the commonest tumor next comes the sebaceous gland carcinoma. Literature also proved that Basal cell carcinoma is the most common malignant tumor next comes the squamous cell carcinoma. In contrast to literature there is increased incidence of sebaceous gland carcinoma next to Basal cell carcinoma which could be attributed to the increased incidence of sweat factor and high humidity in southern areas.

Basal cell carcinoma involved mainly the lowerlid and sebaceous gland carcinoma mainly involves upperlid which is proved by literature . Basal cell carcinoma commonly presented with ulcerative lesion and sebaceous gland carcinoma presented in the form of nodules. Tumor infiltration to adjacent structures were more common in Basal cell carcinoma. Co-relation with histopathalogical diagnosis was obtained in 75% of malignant tumors.

Excision of the tumor was the common modality used for management of benign tumors and malignant tumors. Following excision of the tumor, eyelid should be reconstructed by standard oculoplastic procedures. Radiotherapy is useful only in nodulo ulcerative Basal cell carcinoma not involving medial canthal area and also inoperable cases after meticulous shielding of the eye

CONCLUSION

1. Benign eyelid tumors were more common than malignant eyelid tumors.
2. Benign eyelid tumors were common in the age group between 41-60yrs and malignant eyelid tumors were common between 60-70yrs.
3. Female patients were more commonly affected by benign tumors and male patients were more commonly affected by malignant tumors.
4. Among Benign eyelid lesion squamous papilloma is commonest and among malignant eyelid lesion Basal cell carcinoma is commonest
5. In contrast to western studies, sebaceous gland carcinoma appeared to be the next most common type in our study and upper lid was the most common site of involvement. This could be attributed to the increased incidence of sweat factor and high humidity in southern areas.
6. Histopathological diagnosis differed from the clinical diagnosis in 25% of malignant tumors. So all excised eyelid lesion should be substituted for Histopathological examination.
7. Lid malignancies showed a predilection for eyelid margin where excision necessitates plastic repair.
8. Malignant tumors when detected early were found to respond well to primary excision of tumor with appropriate eyelid repair procedures.
9. Adequate surgical clearance (at least 5mm of normal tissue around the tumor) should be obtained to prevent recurrence.
10. In few Cases which could not be operated external radiotherapy or chemotherapy appears to be effective and safe procedure.

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